

# MANVI GUPTA

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## EDUCATION

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**RWTH Aachen University, Germany**

October 2019 - February 2020

*RWTH Exchange Worldwide Scholarship Recipient (DAAD)*

Overall Grade: 9.25/10

**Indian Institute of Technology(IIT) Mandi**

August 2017 - July 2021

*Bachelor of Technology (B.Tech.)*

CGPA: 9.24/10

*Computer Science & Engineering*

*(Rani Gonsalves Memorial Medal Awardee)*

## WORK EXPERIENCE

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**Software Development Engineer II - Adobe Systems India**

*January 2023 - Present*

*Generative AI & Sensei (Firefly team)*

- Own Devbox Infrastructure Service, the fundamental unit of Adobes Machine Learning Training Platform. Also mentored an intern project to build a vs-code extension for the same.
- Working on building an in-house scheduler on top of the Kubernetes native scheduler to handle the bulk requests (jobs) fairly with minimal resource wastage.

**Software Development Engineer - Adobe Systems India**

*July 2021 - January 2023*

*Cloud Technology Unit (Sensei & Search Team)*

- Worked on Adobe's in-house ML Training Platform used for all the research projects.
- Worked on a cost analytics service for managing the total cost incurred over Adobe-wide ML resources.

**Product Intern - Adobe Systems India**

*May 2020 - July 2020*

*Cloud Technology Unit (Sensei & Search Team)*

Built a Machine Learning pipeline on a distributed Kubernetes Platform & developed a POC for MLflow & Kubeflow capabilities.

Received *Pre-Placement Offer* for a full-time role as Member of Technical Staff based on excellent performance during the internship.

**Software Administrator - Book Nook IIT Mandi**

*Aug 2018 - Sept 2019*

Revamped a large-scale application software of IIT Mandi into a very efficient service with a consistent Database.

## PROJECTS

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**MUTUAL INFORMATION ESTIMATION IN DNNs**

September 2020 - Present

*Major Technical Project*

*Dr. Samar Agnihotri (IIT Mandi)*

- Implemented the Ensemble Dependency Graph Estimator (EDGE) for Scalable Mutual Information Estimation and its variation. Compared the results with that obtained from the HSIC criterion.
- Long term goal is to compare different algorithms for the closest estimate of mutual information across hidden layers in a Deep Neural Network and prove/disprove the Information Bottleneck Principle.

**OPTIMIZING FUNCTIONAL LANGUAGE COMPILERS**

May 2021 - June 2021

*Program Analysis*

*Dr. Manas Thakur (IIT Mandi)*

- Performed a detailed survey on the optimization techniques used by functional language compilers.
- Compared and analysed them for their extent of optimization and the associated overheads.
- Suggested potential improvements in the existing methods, & ways to come up with new optimizations.

## CALL TREE REVERSAL

*Using Mixed Integer Programming*

October 2019 - February 2020

*Prof. Dr. Uwe Naumann (RWTH Aachen)*

- Learnt about checkpointing Function Call Trees using Algorithmic Differentiation that could help to increase program efficiency. Used GUROBI optimizer

## TECHNICAL STRENGTHS

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<b>Computer Languages</b>	C, C++, Python, Java, GoLang, Scheme(Lisp), Haskell
<b>Web Technologies</b>	Spring Boot, HTML, CSS, Flask, PHP
<b>Machine Learning</b>	Keras, Tensorflow, PyTorch, SciKit-Learn, MLflow
<b>Familiar Technologies</b>	Kubernetes, Docker, MySQL, OpenCV, MPI, Git

## RELEVANT COURSEWORK

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Mathematical Foundation of Computer Science	Machine Learning
Information and Database Systems	Paradigms of Programming
Data Structures and Algorithms	Satisfiability Checking
Computer Organization	High Performance Computing
Operating Systems & Computer Networks	Compiler Design
Performance Analysis of Computer Networks	Program Analysis

## POSITION OF RESPONSIBILITY

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### **Founder Coordinator, ACM-W Chapter IIT Mandi**

*Chairperson, August 2019 - August 2020*

- Officially set up the new community. Guided girl students about opportunities in the field of computing and connect the students to women leaders of the world.

### **Undergraduate Teaching Assistant**

- *Paradigms of Programming (Feb. 2021 - June 2021)*
- *Data Science III (Sep. 2020 - Dec. 2020)*
- *Information & Database Systems (Feb. 2020 - Sep. 2020)*

## SEMINARS & WORKSHOPS ATTENDED

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**ACM India Summer School**  
*Cyber Security and Data Analytics*

IIT Delhi  
*July 2019*

- Learnt about security concerns on Social Media, and Cryptographic techniques used in SSL.
- Also got introduced to Natural Language Processing, as a method of encryption-decryption.

## ACADEMIC & EXTRA-CURRICULAR ACHIEVEMENTS

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- Adobe Spot Award winner for outstanding performance in December 2022.
- Overall rank 3 in B.Tech class of 2017-2021, among all the departments.
- Winner of *Hacking the Google Maps*, online competition by Heuristics IIT Mandi, in May 2020.
- Runner up in Astronomy Club Hackweek-2018 held at IIT Mandi.
- Winner of Intra College Diwali Photography Competition 2017.
- First, among the 7 teams from the college in Flipkart GRiD Machine Learning challenge.
- Represented IIT Mandi at Inter IIT Cultural Meet 2017, at IIT Kanpur.
- Ranked in All-India Top 1% (amongst 11,86,000 candidates) in JEE Mains 2017 and Top 2.8% (amongst 1,59,540 candidates) in IIT-JEE Advanced 2017